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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,343	04/15/2004	Jong Shik Yoon	TI 37043	8658
23494 7590 01/29/2008 TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER NGUYEN, THANH T	
			ART UNIT 2813	PAPER NUMBER
			NOTIFICATION DATE 01/29/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/825,343	<b>Applicant(s)</b> YOON ET AL.	
	<b>Examiner</b> Thanh T. Nguyen	<b>Art Unit</b> 2813	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 6-7, 21-23 is/are pending in the application.
- 4a) Of the above claim(s)    is/are withdrawn from consideration.
- 5) ☐ Claim(s)    is/are allowed.
- 6) ☒ Claim(s) 1, 6-7, 21-23 is/are rejected.
- 7) ☐ Claim(s)    is/are objected to.
- 8) ☐ Claim(s)    are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on    is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No.   .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>  </u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                           | 5) <input type="checkbox"/> Notice of Informal Patent Application                           |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>  </u> | 6) <input type="checkbox"/> Other: <u>  </u>  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/14/07 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6-7, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanuki (U.S. Patent No. 7,019,380) in view of an ordinary skill in the requisite art.

Regarding to claim 1, Sanuki teaches a method of manufacturing a Metal Oxide Semiconductor (MOS) transistor, comprising:

forming an active area (s/d) in a substrate (10), wherein said active area (20, 40) is bounded by an isolation structure (30/31, 50/51, fig. 5-8); and

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placing at least one stress adjustor (23, 25) adjacent said active area (20, 40), wherein said stress adjustor (23, 25, area located between trenches 51/50, 31/30, it is noted that the same structure would provide the same function) is positioned to modify a mobility of a majority carrier within a channel region of said MOS transistor (see col. 6, lines 3-7), wherein placing said stress adjustor(23, 25) includes removing portions of said silicon substrate (10) to form at least two trenches (50/51, 30/31, see figures 5-8), wherein a portion of said silicon substrate (10) remaining between said at least two trenches (50/51, 30/31) forms said stress adjustor (23, 25) and filling said trenches (50/51, 30/31, see figures 5-8, col. 5, lines 33-43, col. 6, lines 56-64) with a material comprising said isolation structure, wherein said stress adjustor (23, 25) and a first of said at least two trenches (50/51, 30/31) are located between a portion of a second of said at least two trenches (50/51, 30/31) and said active area (20, 40).

Regarding to claims 6-7, the stress adjustor (23, 25) is configured to decrease a compressive stress imparted from the isolation structure to the channel region (see figure 5-8, col. 6, lines 5-11, reference teach same structure and material hence it would inherently provide the same result of decreasing/increasing compressive stress imparted from isolation structure to the channel region).

Regarding to claim 21, wherein the step of placing the at least one stress adjustor (23, 25) adjacent the active area (20, 40) comprises placing the at least one stress adjustor (23, 25) between about 50 nanometers and about 300 nanometers from said active area (see col. 5, lines 10-22, figures 5-8).

Regarding to claim 22, wherein a long dimension of the at least one stress adjustor (25) is placed perpendicular to a flow of current through said MOS transistors (21) and is substantially equal to a gate (21) width of said MOS transistor (see figures 5, 8).

Regarding to claim 23, wherein a long dimension of the at least one stress adjustor (23) is placed parallel to a flow of current through said MOS transistors (21) and is substantially equal to a gate (21) length of said MOS transistor(see figures 5, 8) .

Sanuki do not clearly recite stress adjustor and the specific length of the gate and the stress adjustor. However, the region between the trenches (50/51, 30/31) has the same material and the same structure as the instant invention describe. Hence, it is obvious that is stress adjustor.

It would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made to optimize the concentration of hydrogen within the dielectric layer, since it has been held that where the general conditions of a claim are disclosed in the prior art (i.e.- specific length of the gate and the stress adjustor), discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233 (CCPA 1955).

The specification contains no disclosure of either the critical nature of the claimed arrangement (i.e.- specific length of the gate and the stress adjustor) or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen limitations or upon another variable recited in a claim, the applicant must show that the chosen limitations are critical. In re Woodruff, 919 F.2d 1575, 1578 (FED. Cir. 1990).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would forming a gate length and the stress adjustor length

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substantially equal in process of Sanuki because determining an optimum or workable ranges involves only routine skill in the art.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://paired.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).

/Thanh Nguyen/  
Thanh Nguyen  
Patent Examiner  
Patent Examining Group 2800